

PHILIPS



Front operated automatic HiFi stereo record player with Direct Control



AF 729

- Performance exceeds DIN 45 500 specification
- Rumble better than - 65 dB, wow & flutter better than 0.05 %, and constant turntable speed through Direct Control electronics
- Shock-proof free-floating sub-chassis
- Straight tubular-aluminium tonearm with de-coupled adjustable counter-weight
- Aluminium turntable
- Very low-friction tonearm bearings
- Light, detachable headshell
- Automatic diameter selection and positioning of arm on start of record
- Automatic stop, arm lift and return at end of record
- Hydraulically damped arm lift
- Anti-skating adjustment for spherical, and elliptical styli
- Direct readout of stylus force
- Front operation
- Controls for 33 $\frac{1}{3}$ and 45 rpm, PLAY and REJECT
- Pitch controls with 3-LED-bar actual speed indication
- Attractive tinted dust cover with friction hinges

Outstanding performance

The AF 729 has a high standard of performance. Rumble, for example, is better than - 65 dB (DIN B), and wow & flutter is less than 0.05 % (weighted rms). These very good figures are attributable to the thorough design and construction of the various sub-sections of the turntable: the suspension, tonearm, headshell, and especially the Direct Control electronics which regulate so precisely the speed of the turntable.

Speed sensing at the turntable

To ensure that the record always rotates at exactly the right speed, the rate of rotation of the turntable itself is continuously monitored and regulated by the Direct Control electronics. The turntable, which is belt-driven from a separate d.c. motor, has a tachometer built into it. The output of the tachometer is converted very accurately into a d.c. voltage whose level is proportional to the actual speed of the turntable. This signal is continuously compared with a stable d.c. reference signal. If anything tends to alter the turntable speed, the tacho-derived signal will differ from the reference; this difference causes the Direct Control electronics to immediately accelerate or slow down the drive motor so as to correct the speed of the turntable.

Record speed unaffected by external influences (e.g. drag of cleaning device)

In addition to improving rumble, wow & flutter and drift specifications, direct control of the turntable speed has the important advantage that the record speed is unaffected by external influences such as the drag of a cleaning device or different stylus force. Similarly, the Direct Control electronics compensate for fluctuations in temperature or mains voltage and frequency.

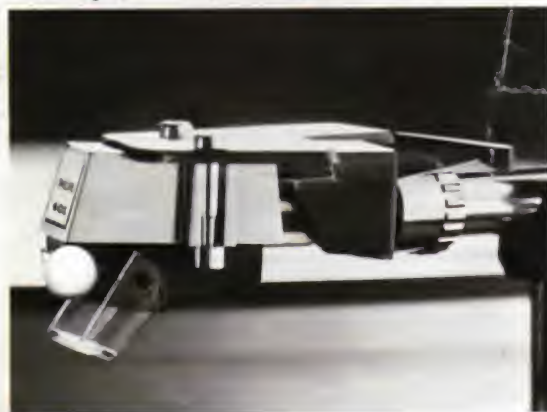
Top-quality tonearm

The straight tubular-aluminium construction of the tonearm gives it an ideal combination of lightness, strength and rigidity, mechanical properties so vital to a top-quality tonearm. Because it is straight, with the stylus on its longitudinal axis, and since the aluminium headshell is so light, the tonearm's center-of-gravity lies very

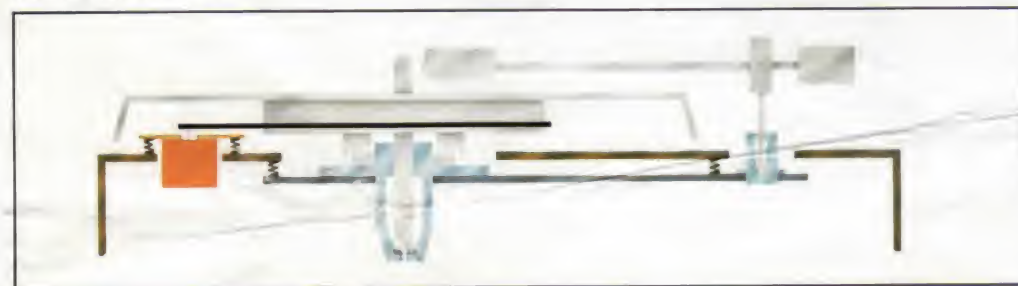




Exploded view of turntable assembly showing speed-sensing tachometer



Detachable headshell



Turntable and tonearm mounted on free floating sub-chassis

close to its axis. Consequently, torsional forces on the arm are minimal. This helps to eliminate unwanted high frequency resonances and keeps the natural resonance of the arm, with the cartridge, to an acceptable low frequency. De-coupling of the tonearm's counterweight provides wideband damping.

Very low-friction bearings

Horizontal and vertical friction forces in the bearings have been reduced to an exceptionally low value ($< 15 \text{ mg}$), so that there is almost no resistance to movement of the arm. As a result, the stylus is able to faithfully follow even the most delicate modulations in the record groove.

Minimal tracking error

Geometric characteristics of the tonearm, such as offset angle and location of the stylus on the tonearm's axis, have been designed to minimize tracking error ($< 0.9^\circ/\text{cm}$).

Excellent trackability

The exceptional small tracking error, combined with the very low friction of the bearings, contributes to the tonearm's excellent trackability ($90 \mu\text{m}$ at 315 Hz).

Free-floating sub-chassis

The turntable and tonearm assemblies are mounted on a separate sub-chassis which is suspended from the main chassis via three nickel-chromium leaf-springs with butyl-rubber dampers. This free-floating

sub-chassis type of suspension is a well-proven and extremely effective technique that achieves superb mechanical isolation of the turntable and tonearm from the main chassis.

Rumble-free, shock-proof and protects record and stylus

The mechanical isolation of the turntable and tonearm has been further improved by careful location of the springs and by using materials with the best possible damping properties. Suspension of the motor from the main chassis has also helped improve isolation. The result is that rumble from the motor is virtually eliminated, and external disturbances, such as vibration and acoustical feedback, are not transferred to the cartridge. Even quite violent knocks to the outer casing will not cause unwanted acoustical noises. And, of course, the valuable stylus and records are better protected from accidental damage.

Peak performance and high reliability through extensive use of electronics

The very high standard of performance and reliability of the AF 729 can be largely attributed to the use of electronics in preference to mechanical operations. The Direct Control electronics, for example, compensate for variations in mechanical loading. Electronic pitch controls are more accurate and reliable than their mechanical counterparts, while the LED-bar speed indicator is so much more accurate and convenient to use than the usual stroboscopes.



Front-operated – ideal for rack-mounting

With all its main operating controls front-mounted, the AF 729 is tailor-made for the top deck of a rack-mounting stereo Hi-Fi system. To ensure maximum operator convenience and ease of operation, the controls and indicators are arranged along a slightly-inclined front panel, making them visible and accessible, from the front and from above. The AF 729 also has many other attractive design features – like its slim, low profile; its precision-machined aluminium parts with eye-catching diamond-cut grooves; and, of course, its tinted dust cover with friction hinges that support it at almost any angle – all designed to make the AF 729 look every bit as good as it performs.

Automatic operation with many features and facilities

The AF 729 has been designed to function automatically with individual records. At the touch of a button, the turntable is started and the arm is automatically placed on to the beginning of the record. At the end of the record, the arm is automatically raised and returned to its rest and the turntable switched off.

Safety clutch

A safety clutch protects the arm mechanism against damage during automatic setting-up and return.

Pitch controls with LED speed indication

For fine adjustment of the turntable speed ($\pm 3\%$), two pitch controls are provided. Accurate indication of the speed is given by a LED-bar comprising three separate LED's.

Controls

Four push-button controls are provided. Two of these are for selecting the desired speed (33 and 45 rpm). Operation of the PLAY button sets the turntable in motion and causes the arm to be raised, positioned above the record's starting point and lowered on to the record. Correct positioning of the arm is determined by the diameter of the record; this is automatically sensed by a switch built into the turntable. When the REJECT control is operated, the arm is raised and returned to its rest, the turntable is stopped, and the secondary power supply switched off.

Detachable headshell

The headshell has been made detachable from the arm to facilitate cleaning or changing of the cartridge.

Direct readout of the adjustable stylus force

Stylus force can be set quickly, easily and accurately to the appropriate value, thanks to the direct readout dial that is provided. The setting is done by means of the tonearm's adjustable counterweight.

Universal anti-skating adjustment

An anti-skating adjustment enables horizontal bias compensation to be set

according to the type of stylus in use. It is marked with separate scales for spherical and elliptical styli.

Hydraulically damped cueing lever

Manual raising and lowering of the tonearm is done by means of a hydraulically damped cueing lever. This ensures that the arm is always raised, or lowered, gently yet firmly, to prevent damage to the record or stylus.

Technical specification

Turntable speeds

33 $\frac{1}{3}$ and 45 rpm

Wow & flutter

DIN : better than 0.08 %
Weighted rms: better than 0.05 %

Rumble

DIN A: better than – 43 dB
DIN B: better than – 65 dB

Pitch control range

$\pm 3\%$

Speed indication

3-element LED-bar

Tonearm

Tubular-aluminium

Tracking error

Better than 0°9'/cm

Bearing friction

Better than 15 mg,
vertically and horizontally

Resonant frequency (with test cartridge)

10 Hz

Effective arm length

215 mm; 8.46 inches

Effective moving mass

16.5 g

Anti-skating adjustment

For spherical and elliptical styli

Cueing lever

Hydraulically damped

Headshell

Die-cast aluminium

Stylus force

Range: 7.5 – 30 mN (0.75 – 3 gf)
Indication: direct readout

Turntable

Material: aluminium
Diameter: 310 mm approx. (12 $\frac{19}{32}$ inches)

Power supply voltage

110 V, 60 Hz

Power consumption

0.1 amperes

Dimensions

With dust cover closed:
141 (h) x 450 (w) x 365 (d) mm
5 $\frac{1}{2}$ (h) x 17 $\frac{3}{4}$ (w) x 14 $\frac{1}{3}$ (d) inches
With dust cover open:
335 (h) x 450 (w) x 412 (d) mm
13 $\frac{1}{4}$ (h) x 17 $\frac{3}{4}$ (w) x 16 $\frac{1}{4}$ (d) inches

Weight

5.8 kg (13 lb. approx.)